1. Based on the 2000 Census, Florida has 28 fewer electoral votes for president than California. The total number of electoral votes for these two states is 82.

If \( x \) represents the number of electoral votes for California, which of the following equations represent this problem?

A. \( 2x - 28 = 82 \)  
B. \( x - 28 = 82 \)  
C. \( 28 - 2x = 82 \)  
D. \( 28 - x = 82 \)

2. Dale has a box that contains 47 coins consisting of pennies, dimes and quarters. The number of pennies is equal to the number of dimes, and the total value is 7.07 USD.

If \( x \) represents the number of pennies, the number of quarters can be expressed as:

A. \( 7.07 - 0.25x \)  
B. \( 47 - 0.25x \)  
C. \( 47 - 2x \)  
D. not enough information

3. A car and a lorry depart from the same place at the same time, but travel in opposite directions. The car travels 6 miles per hour faster than the lorry. After 4 hours, the vehicles are 608 miles apart.

If \( x \) represents the speed of the lorry, which of the following equations represent this problem?

A. \( 2(x + 6) + 2x = 608 \)  
B. \( 4(x + 6) + 4x = 608 \)  
C. \( \frac{x + 6}{4} + \frac{x}{4} = 608 \)  
D. \( \frac{x + 4}{608} - \frac{x}{608} = 6 \)
4. Solve the equation. 

\[ 3 + 2(x - 5) = 4(x - 2) - 2x \]

A. all real numbers 
B. no solution 
C. \( x = \frac{3}{17} \) 
D. \( x = \frac{5}{3} \)

5. Determine the constant that should be added to 

\[ x^2 - \frac{6}{7}x \]

to generate a perfect-square trinomial.

A. \( \frac{6}{49} \) 
B. \( \frac{9}{49} \) 
C. \( \frac{36}{49} \) 
D. \( \frac{3}{14} \)

6. Solve the quadratic equation \( x^2 - 5x + 2 = 0 \).

A. \( \left\{ \frac{-5 \pm \sqrt{33}}{2} \right\} \) 
B. \( \left\{ \frac{5 \pm \sqrt{33}}{2} \right\} \) 
C. \( \left\{ \frac{-5 \pm \sqrt{17}}{2} \right\} \) 
D. \( \left\{ \frac{5 \pm \sqrt{17}}{2} \right\} \)
7. Solve the equation $x^3 - 25x = 0$.
   
   A. $\{\pm 5\}$  
   B. $\{0, 5\}$  
   C. $\{0, \pm 5\}$  
   D. $\{0, -5\}$

8. Solve the inequalities.
   
   $\frac{x}{3} - 1 \geq x$  or  $2x - 6(x - 3) \leq 10$
   
   A. $\left[-\frac{3}{2}, 2\right]$  
   B. $(-\infty, 2]$  
   C. $\left[-\frac{2}{3}, 2\right]$  
   D. $\left(-\infty, -\frac{3}{2}\right) \cup [2, \infty)$

9. If $3 < x < 12$, then $a < 4x + 2 < b$. Find the exact value of $b$.
   
   A. $b = 14$  
   B. $b = 50$  
   C. $b = 40$  
   D. $b = 12$

10. Solve the equation $|2x - 1| + 5 = 8$.
    
    A. $\{2\}$  
    B. $\{-1, 2\}$  
    C. $\{-6, 2\}$  
    D. $\{1, 2\}$
11. If the distance between $P$ and $R$ plus the distance between $Q$ and $P$ is equal to the distance between $R$ and $Q$, then the points $P$, $Q$ and $R$ are collinear.

A. True
B. False

12. In which quadrant is the first coordinate negative?

A. I and II
B. III and IV
C. II and III
D. I and IV

13. Find the distance between the points $(1, 5)$ and $(-3, 7)$.

A. $2\sqrt{3}$
B. $2\sqrt{5}$
C. $3\sqrt{2}$
D. $5\sqrt{2}$

14. Find the midpoint between $(-3, 7)$ and $(5, -20)$.

A. $\left(-4, \frac{27}{2}\right)$
B. $\left(2, -\frac{15}{2}\right)$
C. $\left(1, -\frac{13}{2}\right)$
D. $(2, -13)$
15. Which of the following points is on the graph of $y = 3x^2 - 2x + 5$?

A. $(-1, 4)$  
B. $(-1, 0)$  
C. $(5, 0)$  
D. $(-1, 10)$

16. The slope of any vertical line is

A. $m = 0$  
B. $m = -1$  
C. undefined  
D. not enough information to determine

17. Find the slope of the line perpendicular to the line with slope 7.

A. $m = \frac{1}{7}$  
B. $m = -\frac{1}{7}$  
C. $m = -7$  
D. $m = 7$

18. Write the equation of the horizontal line through the point $(-2, 5)$.

A. $x = -2$  
B. $x = 5$  
C. $y = -2$  
D. $y = 5$
19. The lines with the equations below are:
\[
\begin{align*}
\frac{1}{3}x + y &= 3 \\
-9x + 3y &= 13
\end{align*}
\]
A. parallel  
B. perpendicular  
C. vertical  
D. none of these

20. Let \( L_1 \) be a line of slope 2. If \( L_2 \) is a line of slope \( m \) and \( L_2 \) is perpendicular to \( L_1 \), then which of the following statements is true?
A. \( m \) is undefined  
B. \( 0 < m < 2 \)  
C. \( m > 2 \)  
D. \( m < 0 \)

21. If the line \( x = 2 \) hits the graph of a curve in two places, then the graph does not represent a function.
A. This is true, because the definition of a function says that no vertical line touches the graph more than once. 
B. This is false, because every vertical line must hit the graph twice to keep the graph from representing a function. 
C. This is true, because the \( y \)-values at the two points where the line touches the curve both correspond to \( x = 2 \). 
D. This is false, because there might be another vertical line that only hits the curve at a single point.

22. Identify the \( x \)-coordinate of the solution to the simultaneous equations.
\[
\begin{align*}
2x + 3y &= 5 \\
x + 2y &= 1
\end{align*}
\]
A. \( x = -3 \)  
B. \( x = 5 \)  
C. \( x = 7 \)  
D. \( x = -\frac{1}{3} \)
23. Which of the following relations DOES NOT define \( y \) as a function of \( x \)?

I. 

II. 

III. 

IV. 

A. II only  
B. I and II  
C. III and IV  
D. II, III and IV
24. Which equation DOES NOT define $y$ as a function of $x$?

A. $y = \frac{5}{x} + x$
B. $2x - 3y^2 = 5$
C. $4 = |x - 5| - y$
D. $y = x^2 - 2x + 1$

25. Which of the following correspondence diagrams DOES NOT define $y$ as a function of $x$?

A. I only
B. I and II
C. III and IV
D. II, III and IV